Marcus Hook Refinery

Hon

Sun Refining and Marketing Company
P O Box 426
Marcus Hook PA 19061-0426

June 6, 1991

Mr. Hon Lee
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION III
Pennsylvania Permits Section (3HW51)
841 Chestnut Building
Philadelphia, PA 19107

Dear Hon,

We have completed Sun Refining and Marketing Company's ("Sun") review of the January 1991 Draft Phase II RCRA Facility Assessment ("RFA") for the Sun Marcus Hook Refinery prepared by A. T. Kearney for EPA, Region III. This letter provides our comments on that draft document.

In addition to Sun's comments on the Draft RFA, this letter also presents Sun's conceptual approach for corrective action at the Marcus Hook facility. This conceptual approach considers: (1) installation of a perimeter groundwater monitoring system; (2) operating a groundwater control system in those areas that may present a real risk to the environment based on a qualitative risk characterization; (3) prioritizing Solid Waste Management Units, Areas of Concern and other areas for action based on their environmental significance; and (4) streamlining the process to focus on remediation rather than detailed, redundant investigations. We believe that implementation of this conceptual approach will aggressively mitigate real environmental and/or human health risks.

COMMENTS ON THE DRAFT PHASE II RFA

Attachment 1 to this letter provides a description of minor typographical and informational errors found in the Draft RFA. Revising the RFA in accordance with Attachment 1 will make the final RFA more factually accurate.

Sun believes that the draft RFA reflects an overly broad characterization of areas as Solid Waste Management Units and Areas of Concern and, accordingly, proposes to address many areas that are beyond EPA's authority to address under RCRA. Of the 77 areas which EPA's contractor designated as Solid Waste Management Units (SWMUs) and Areas of Concern requiring further action, we believe that at least 57 of the SWMUs and all of the Areas of Concern are areas that do not involve solid waste management covered by RCRA. These units are:

* 4	Tank No. 4 Sludge Storage Tank
* 5	Tank No. 5 Sludge Decant Tank
13	Tank No. 50 Lime Slurry Tank
15	Tank No. 55 Hot Water Wash Tank
18	Lime, Spent Clay and Catalyst Loading System
19	Sludge Receiving Trough
28	Phillips Island Maintenance Storage Area
31	Firefighter Training Area
32	Tank 101 Storm Water Surge Tank (referred to by EPA contractor as "Impoundment Tank")
33	Phillips Island Surface Drainage Ditches (handles Storm Water)
34	Phillips Island Sand Blasting Area
43	10-4 Plant Sour Water Stripper
50	Mechanical Shop Equipment Wash Rock
51	Dock No. 2 Recovery Well System
53	8-C Crude Unit Drip Showers
55	Benzene Vapor Recovery System
57	Clay Contact Plant Area
59	Slop Oil Tank No. 132
60	Slop Oil Tank No. 388
61	Ballast Water Tank W-12
63	1A Oil/Water Separator
64	1B Oil/Water Separator
65	1C Oil/Water Separator
66	1D Oil/Water Separator
67	1E Oil/Water Separator
68	1F Oil/Water Separator
69	1F Oil/Water Separator Feed Trench
70-79	9 and 14 Oil/Water Separators
80	Discharge Pipe and Excavation at 9 & 14 Oil/Water Separators
81-82	10 Oil/Water Separator
83	12A Oil/Water Separator
84-86	16 Oil/Water Separator
87-94	15 Oil/Water Separator
95	Combined Process/Storm Sewer System
97	Product Drip Collection Areas
98	Aboveground Tank Containment Areas
99	Rail car Loading/Unloading Areas and Associated Tracks
100	Used Oil Accumulation Areas
A	AOC: Refinery Spill Areas
B	AOC: Underground Transfer Lines
C	AOC: Underground Storage Tank Excavation Areas
D	AOC: Underground Storage Tanks
E	AOC: Underground Storage Caverns
F	8-C PLB Transformer Area
G	AOC: 1F Oil/Water Separator Electrical Box
H	AOC: Kerosene Contamination Area

At this time, it is not necessary or productive to present a full explanation of reasons why Sun believes that these areas are beyond EPA's authority to address under the corrective action authority provided for in RCRA. In fact, the conceptual approach for addressing corrective action at the Marcus Hook facility which Sun discusses later in this letter will provide a means by which contamination from all sources within the Refinery will be addressed, including the units on this list. Sun is committed to taking efficient, responsible action to control the affect of any contamination at the Marcus Hook Refinery which may be causing adverse environmental or potential health concerns, such as migration off of Refinery property into surface or ground waters or into the atmosphere whether that impact is from a unit that is properly designated a Solid Waste Management Unit or whether it be from contamination caused by non-waste related operations of the facility as a petroleum refinery.

By way of a general explanation on why Sun believes that EPA cannot proceed under RCRA to address many of the SWMUs and Areas of Concerns identified in the draft RFA, Sun believes that the foundation of EPA's authority under RCRA is that solid waste management must have occurred at the location before the area can be designated as a SWMU. Accordingly, areas or vessels which manage or hold product are not SWMUs since they contain product rather than waste. Such areas or vessels would include, by way of example, caverns, product drip collection areas, and underground transfer lines. Spills or leaks from these vessels or units do not, we believe, make an area a SWMU.

Many vessels at Marcus Hook handle wastewater as part of the ongoing process for recycling hydrocarbons in the refinery. Since these materials are not discarded, they are not yet wastes and releases from them do not create SWMUs. Examples of such units include the combined process/stormwater sewer system, the oil/water separators, the slop oil tanks, the ballast water tank, Dock No. 2 recovery well system.

There are other areas listed as SWMUs by EPA's contractor at which no solid waste activity took place. Examples are the railcar loading/unloading areas and associated tracks, the firefighter training area, refinery spill areas, and the 8-C plant PCB transformer area.

CONCEPTUAL APPROACH FOR CORRECTIVE ACTION AT MARCUS HOOK

Notwithstanding Sun's objection to EPA's contractor's overly broad classification of a number of areas as areas constituting Solid Waste Management Units or Areas of Concern, Sun proposes an aggressive, broad conceptual approach for addressing releases from not only the 12 areas within the Refinery which may be appropriately classified as Solid Waste Management Units but also for any contamination within the Refinery. We urge EPA to give Sun's proposal serious consideration since this approach will address the impact of contamination immediately, and minimize detailed, unnecessary investigations on the nature of the contaminants. If accepted by the EPA, Sun's approach would also enable the Company and the government to move on with agreed-upon, acceptable controls on the affects of all contamination without potentially disruptive arguments over the appropriate statutory basis on which the remediation will take place. We believe that prompt, effective and efficient remedial action is far superior to protracted, redundant or unnecessary analysis. We are prepared to work with EPA to move on with responsive and responsible remediation.

We believe that EPA shares Sun's desire to aggressively mitigate real environmental or health risks that may have resulted from releases at the Marcus Hook Refinery. However, since the Marcus Hook Refinery is located within an area that has been heavily industrialized since the early 1900s and since the source and nature of any contamination at the refinery itself is generally known, imposition of stringent investigation and subsequent cleanup requirements could cost Sun hundreds of millions of dollars with little or no environmental benefit.

Sun understands its obligations under RCRA corrective action and believes that expeditious action can be taken to significantly reduce the off-site impact, if any, caused by the Marcus Hook Refinery. Unfortunately, the RCRA corrective action permitting process of SWMU-by-SWMU investigation has historically caused significant delays to expeditious remediation by imposing exhaustive, redundant SWMU investigations.

EPA has recognized the conflict between expeditious remediation and the time-consuming corrective action process. The Preamble to the Proposed Corrective Action Rule (Subpart S) and the July 1990 RCRA Implementation Study (OSWER Directive 20S-0001: "The Nation's Hazardous Waste Management Program at a Crossroads") clearly expressed the Agency's desire to streamline

the corrective action process by limiting and focusing investigations to allow prompt remediation.

In light of these considerations, Sun has prepared a conceptual approach for corrective action at the Marcus Hook Refinery which would operate within the statutory and regulatory framework of a corrective action permit, yet accomplish the major goal of corrective action (remediation to reduce risks to human health and the environment) more effectively and expeditiously. This conceptual approach is based on three major considerations.

First, from a risk-related standpoint, the greatest potential environmental concern at the Marcus Hook Refinery would likely be the migration of contaminants off-site. Since groundwater in the vicinity of the Refinery is not used as a drinking water source, the real risk to human health from off-site migration of contaminated groundwater is minimal to non-existent. However, since groundwater flows toward the Delaware River, we recognize that there is the potential that any contamination from the Refinery may affect the River.

Second, in considering the impact of the Refinery on the Delaware River, it is important to understand that the Marcus Hook Refinery is not the sole contributor of contaminants to the River. Major manufacturing facilities have operated along the Delaware River in the immediate vicinity of the Sun Marcus Hook Refinery and upstream and downstream of the facility for nearly 100 years. Groundwater and the Delaware River are generally believed to have been impacted by these facilities. Establishing stringent cleanup standards for the Marcus Hook Refinery without considering the relationship of other sources would have little, if any, beneficial impact on the water quality in the Delaware River. In the Proposed Corrective Action Rule, EPA recognized that facilities located within "areas of broad contamination" might never be able to meet rigid cleanup standards. EPA also recognized that even if such cleanup levels could be achieved, there would be little overall environmental benefit from creating "islands of purity" within areas of broad contamination.

Lastly, while there may be releases from areas within the Refinery, the real affect of these areas on health or the environment may be negligible to non-existent considering the quantity and nature of the possible releases.

Based on these considerations, Sun's conceptual approach to corrective action consists of the following phases:

(1) Focus on eliminating real or potential risks to human health and the environment by controlling possible off-site migration of contaminated groundwater from the Marcus Hook Refinery on a facility-wide basis

The approach of controlling off-site migration of contaminants at active, RCRA facilities is not new to EPA. The RCRA Implementation Study strongly emphasized more immediate control of off-site contamination migration in order to "stabilize" releases from RCRA facilities. By quickly controlling off-site migration, risks, if any, to human health and the environment could be significantly reduced. The Study also emphasized that "stabilization" should not be delayed while an intensive contaminant investigation was performed.

Rather than focusing time and resources on extensively investigating the impacts of each SWMU or Area of Concern, Sun believes that, if necessary, operation of a groundwater control system will more immediately address any real environmental impacts of the Marcus Hook facility as a whole. In order to determine real environmental impacts, Sun proposes to monitor groundwater along the perimeter of the Refinery. Using the results of this groundwater monitoring, Sun would then conduct a qualitative risk characterization to evaluate the real risk posed by the Marcus Hook Refinery. This characterization would evaluate potential contaminant pathways, compounds of concern, potential magnitude and concentration of any discharges, acceptable cleanup goals and remedial options. The qualitative risk characterization would not be an exhaustive, formal risk assessment, but would provide data to support remedial options and the establishment of cleanup goals. Sun believes that the qualitative risk characterization will confirm that there is little or no real risk to human health or the environment caused by possible releases from the Marcus Hook Refinery.

Based on the results of this risk characterization, Sun would then operate a groundwater system to control off-site contaminant migration at those perimeter areas determined to present a real risk to the environment.

(2) Prioritize SWMUs and Areas of Concern and other areas for additional investigation and/or remediation

The RCRA Implementation Study recognized that all SWMUs at a facility are not of equal environmental significance. Some SWMUs may have releases with known impacts to the environment; other SWMUs with a potential for release may require investigation to determine whether there has been a release. The RCRA

Implementation Study strongly recommended action at the "worst sites (or SWMUs) first" as a means of prioritizing the most environmentally significant SWMUs for immediate action.

Sun is aware that not all SWMUs or Areas of Concern at the Refinery are of equal environmental significance. We also recognize that it is possible that contamination may exist that warrants a priority and that the source is not an area subject to RCRA corrective action. Therefore, Sun recommends that the final Phase II RFA prioritize areas for additional investigation and remediation according to the significance of their impact on the environment. Using this approach, Sun would target "high priority" areas for more immediate action, while deferring action at "low priority" SWMUs, Areas of Concern or other areas.

(3) Active remediation rather than investigation at most SWMUs or Areas of Concern

The Marcus Hook Refinery has manufactured conventional petroleum products for over 100 years. Wastes and other contaminants generated during this period include oily waste possibly containing low levels of chromium and lead. Activities have been conducted at locations throughout the facility making discrete definition of solid waste management units or areas of concern a time and resource consuming task.

Although Sun agrees that additional work is required at some areas, Sun recommends a program of active remediation which includes the use of innovative technologies to remove and/or control sources rather than conducting extensive investigations to fully (and redundantly) characterize sources. For example, instead of collecting limited samples from contaminated areas followed by more extensive sampling to characterize releases from SWMUs or Areas of Concern, bioremediation, on-site thermal soil treatment, selective soil excavation or paving in areas to control future releases could be performed. In this way, immediate steps could be taken to quickly and efficiently address areas that may require action.

Consistent with this action-oriented approach, Sun has completed, and is currently undertaking or planning to undertake several major on-site projects which will mitigate or reduce contamination and will result in significant environmental benefit. These projects include:

Middle Creek Replacement Project
Ongoing Groundwater Assessment
Product Recovery Operations
Pollution Prevention Study and Waste Minimization Activities
Removal and Replacement of USTs
New Sour Water Stripper
Automated Tank Gauging/Alarm System
Retrofilled all Refinery PCB Transformers
Compliance with the Pennsylvania Tank Law
Compliance with the Toxicity Characteristic and Primary Sludge Rules
Compliance with Benzene NESHAPS

Many of the units or areas that will be involved in the projects listed above are included in the Phase II RFA. Because work has already started on these projects, Sun recommends that EPA allow these projects to continue on the schedule that has already been established.

With the operation of a groundwater recovery system in areas of real risk, releases from any areas within the Refinery would pose little or no real risk. Investigation and possible remediation at some high priority SWMUs, Areas of Concern or other areas would provide information to characterize the rate, nature and extent of releases that would serve to identify whether additional remediation is necessary to stabilize or otherwise control releases and to increase the efficiency of the groundwater recovery system.

Sun appreciates the opportunity to review and comment on the Draft Phase II RFA. We look forward to meeting with you on June 24 to discuss our comments on the Draft RFA and our conceptual approach in more detail. If you have any questions before that time, please call me at (215) 447-1176.

Sincerely,
SUN REFINING AND MARKETING COMPANY

Gary P. Rabik

GARY P. RABIK
Manager, Environmental Engineering
Risk Management Department

GPR:dmb
EJC6-5.dmb

ATTACHMENT 1

Typographical or Informational Errors in the Phase II RFA

Page II-4, Paragraph 1: The storage tanks and lines at No. 3 Tank Farm have been removed.

Page II-4, Paragraph 3: Change "10 feet below sea level" to "10 feet above sea level".

Page II-5, Paragraph 2: Insert between "basin" and "to" the wording "through a final API separator system and then".

Page III-1, Paragraph 1: Remove "(40 percent leaded and 60 percent unleaded)" and "waxes".

Page III-3, Paragraph 4: Change "NPDES Permit No. 0011096 to "NPDES No. PA 0011096".

Page III-4, Paragraph 3 & 4: Move the paragraph starting with "SR&MC and PADER signed a Consent Order and Agreement on November 24, 1980..." ahead of the paragraph starting with "The 1986 NPDES permit application..." in order to keep chronological continuity.

Page III-4, Paragraph 3: Change "Monitoring point 401 is a combined monitoring point for non-contact cooling water..." to "Monitoring point 501 is a combined monitoring point for off-site stormwater and non-contact cooling water...".

Additionally, delete the next two sentences "Monitoring point 501 was used...off-site. The off-site stormwater was later diverted to a DELCORA treatment plant." Off-site stormwater is conveyed through the refinery and is discharged directly to surface waters via NPDES points 501 and 020.

Page III-10, Figure III-I: Remove "89 leaded".

Page III-15, Figure III-3: Change "Filter Coke" to "Filter Cake".

Page III-17, Figure III-4: Figure III-4 is an out of date schematic which shows typical wastewater flows in 1980. A current schematic is attached as Attachment A-1.

Page III-20, Paragraph 4: Change "K057" to "K051".

Page III-21, Paragraph 3: Change "other off-site refineries" to "other Sun facilities".

Page IV-9: Under the Section titled "History of Releases" it is stated that there is no information that spill material was

removed. Please see the letter dated January 23, 1989 from SUN to PADER (Attachment A-2 to these comments). The spill residue was removed and disposed of at the Envirosafe secure landfill in Oregon, Ohio.

Page IV-13: Under "Waste Managed" it is stated that wastewater may contain "up to 30 percent oil". This statement is incorrect. Concentrations of oil and grease in wastewater are normally less than 100 ppm which is well below 30 percent.

Page IV-28: Under "Unit Description", "Dock 1" should be changed to "Dock 3".

Page IV-29: Under "Waste Managed", the words "incinerator ash that may have been EP toxic" and "the unit may have also been the location of unlined crude oil impoundments during the history of the facility" should be deleted. These statements are untrue.

Page IV-28, Paragraph 3: The words "if lighted" should be changed to "is lighted".

Page IV-45: Under "Dates of Operation", the date should be "1987" rather than "1979".

Page IV-50: Under "Unit Description", it is stated that information was not provided on the disposal of the waste materials. Such information is available. Generally, the liquid wastes were reprocessed through the refinery slop oil system. Emulsions were sent to a commercial TSD facility and solids were sent to an off-site commercial landfill.

Under "Wastes Managed", it is stated that "chlorinated hydrocarbons" were managed in this unit. No chlorinated hydrocarbons were managed in this unit.

Page IV-54: Under "Unit Description", water from 132 Tank is discharged to 16 Separator not to the "1F Separator".

Page IV-58: Under "Unit Description", water from the bundle cleaning area does not flow "to the 1D oil/water Separator", rather it flows to the wastewater treatment system.

Page IV-60: Under "Unit Description", water is piped <u>under</u> not "over" the rail line.

Page IV-62: Separator 1E does not exist. There is a wastewater junction box which is referred to as 1B Separator.

Page IV-80: Under "Waste Managed", delete the word "from" between the words "wastewater" and "contaminated".

Page V-1, Paragraph 2: Delete "(40 percent leaded and 60 percent unleaded)".

Page V-2, Paragraph 1: Water is no longer drained directly to soils. It is hardpiped to the sewer system.

Page V-2, Paragraph 2: The substance at Dock No. 2 was identified as kerosene as soon as it was discovered. The source was also known to be an underground kerosene transfer line.

Page VII-6: Unit No. 17 manages perlite or other precoat materials in addition to FCCU catalyst fines.

ATTACHMENT A-1

MARCUS HOOK REFINERY LINE DRAWING & WATER BALANCE

1989 DATA

DOES NOT INCLUDE PLANT STORMWATERS
THAT ARE TREATED VIA THE POTW